

# ASSIGNMENT -- 4

## WOKWI PROGRAM

Team ID : PNT2022TMID47019

The screenshot displays the Wokwi IDE interface with the following components:

- Code Editor (esp32-dht22.ino):**

```
1 #include <WiFi.h>
2 #include <PubSubClient.h>
3 WiFiClient wifiClient;
4 String data3;
5 #define ORG "0n0qpV"
6 #define DEVICE_TYPE "Nodemcu"
7 #define DEVICE_ID "IBM3"
8 #define TOKEN "smartwaste3"
9 #define speed 0.034
10 #define led 14
11 char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
12 char publishTopic[] = "iot-2/evt/manimd/fmt/json";
13 char topic[] = "iot-2/cmd/led/fmt/String";
14 char authMethod[] = "use-token-auth";
15 char token[] = TOKEN;
16 char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
17 PubSubClient client(server, 1883, wifiClient);
18
19 const int trigpin=5;
20 const int echopin=18;
21 String command;
22 String data="";
23
24 long duration;
25 float dist;
26
27
28 void setup()
29 {
30   // Serial.begin(115200);
```
- Simulation Window:** Shows a visual representation of the ESP32 and DHT22 sensor module connected by wires. It includes a "Restart the simulation" button and a timer showing 00:03.114 at 57% battery.
- Log Console:**
  - Reconnecting MQTT client to 0n0qpV.messaging.internetofthings.ibmcloud.com
  - IBM subscribe to cmd OK
  - Sending payload: {"Distance":135.95}
  - Publish OK

The Windows taskbar at the bottom shows the system clock as 23:08 on 17-11-2022.

IBM Watson IoT Platform x IBM Watson IoT Platform x W esp32-dht22.ino copy - Wokwi

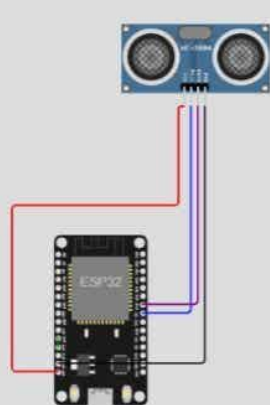
wokwi.com/projects/348478750507139667

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esp32-dht22.ino diagram.json libraries.txt Library Manager

```
31 Serial.begin(115200);
32 pinMode(led, OUTPUT);
33 pinMode(trigpin, OUTPUT);
34 pinMode(echopin, INPUT);
35 wifiConnect();
36 mqttConnect();
37 }
38
39 void loop() {
40   bool isNearby = dist < 100;
41   digitalWrite(led, isNearby);
42
43   publishData();
44   delay(500);
45
46   if (!client.loop()) {
47     mqttConnect();
48   }
49 }
50
51 void wifiConnect() {
52   Serial.print("Connecting to "); Serial.print("Wifi");
53   WiFi.begin("Wokwi-GUEST", "", 6);
54   while (WiFi.status() != WL_CONNECTED) {
55     delay(500);
56     Serial.print(".");
57   }
58   Serial.print("WiFi connected, IP address: "); Serial.println(WiFi.localIP());
59
60 }
```

Simulation



Sending payload: {"Distance":136.02}  
Publish OK

Type here to search

23:06  
17-11-2022

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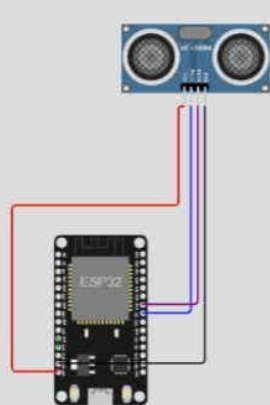
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esp32-dht22.ino • diagram.json • libraries.txt Library Manager

```
61 void mqttConnect() {
62   if (!client.connected()) {
63     Serial.print("Reconnecting MQTT client to "); Serial.println(server);
64     while (!client.connect(clientId, authMethod, token)) {
65       Serial.print(".");
66       delay(500);
67     }
68     initManagedDevice();
69     Serial.println();
70   }
71 }
72
73 void initManagedDevice() {
74   if (client.subscribe(topic)) {
75     // Serial.println(client.subscribe(topic));
76     Serial.println("IBM subscribe to cmd OK");
77   } else {
78     Serial.println("subscribe to cmd FAILED");
79   }
80 }
81 void publishData()
82 {
83   digitalWrite(trigpin, LOW);
84   digitalWrite(trigpin, HIGH);
85   delayMicroseconds(10);
86   digitalWrite(trigpin, LOW);
87   duration=pulseIn(echopin, HIGH);
88   dist=duration*speed/2;
89   if(dist<100){
90     String payload = "{\"Alert Distance\":\"";
```

Simulation



Sending payload: {"Distance":136.02}  
Publish OK

Type here to search

23:07  
17-11-2022

IBM Watson IoT Platform x esp32-dht22.ino copy - Wokwi

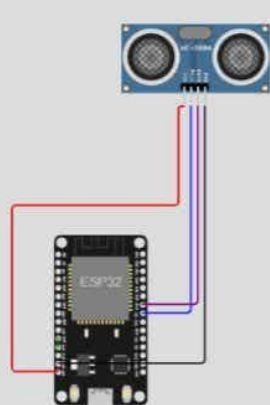
wokwi.com/projects/348478750507139667

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esp32-dht22.ino diagram.json libraries.txt Library Manager

```
91 payload += dist;
92 payload += " ";
93
94 Serial.print("\n");
95 Serial.print("Sending payload: ");
96 Serial.println(payload);
97 if (client.publish(publishTopic, (char*) payload.c_str())) {
98   Serial.println("Publish OK");
99 }
100
101 }
102 if(dist>100){
103   String payload = "{\"Distance\":";
104   payload += dist;
105   payload += " }";
106
107   Serial.print("\n");
108   Serial.print("Sending payload: ");
109   Serial.println(payload);
110   if(client.publish(publishTopic, (char*) payload.c_str())) {
111     Serial.println("Publish OK");
112   }else {
113     Serial.println("Publish FAILED");
114   }
115 }
116 }
117
118
119
120
```

Simulation



Sending payload: {"Distance":136.02}  
Publish OK

Type here to search

23:07  
17-11-2022

OUTPUT : This device was connected to IOT WATSON successfully .

The screenshot shows the IBM Watson IoT Platform dashboard. The top navigation bar includes the IBM Watson IoT Platform logo, a user profile icon, and the email address 822119106023@smartinternz.com with ID: 0n0qpv. The main navigation menu on the left includes options like Browse, Action, Device Types, and Interfaces. The 'Browse' tab is active, showing a list of devices. The selected device is 'IBM3', which is 'Disconnected' and of type 'Nodemcu'. The 'Recent Events' tab is selected, showing a table of events. The table has columns for Event, Value, Format, and Last Received. The events listed are 'manimd' with values like '{"Distance":135.97}' and '{"Distance":135.97}', all in 'json' format, received 'a few seconds ago'. A tooltip for the last event shows '1 Simulation running'.

IBM Watson IoT Platform

822119106023@smartinternz.com  
ID: 0n0qpv

Browse Action Device Types Interfaces

Add Device +

IBM3 Disconnected Nodemcu Device

Identity Device Information Recent Events State Logs

The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
manimd	{"Distance":135.97}	json	a few seconds ago
manimd	{"Distance":135.97}	json	a few seconds ago
manimd	{"Distance":135.97}	json	a few seconds ago
manimd	{"Distance":135.97}	json	a few seconds ago

1 Simulation running





← Back

# Device Drilldown - IBM3

- Device Credentials
- Connection Information
- Recent Events
- State
- Device Information
- Metadata

Organization ID	0n0qpv
Device Type	Nodemcu
Device ID	IBM3
Authentication Method	use-token-auth
Authentication Token	smartwaste3



Authentication tokens are non-recoverable. If you misplace this token, you will need to re-register the device.

Find out how to manage tokens

1 Simulation running